a. a resinous binder comprising:

i. a reaction product of an epoxy-containing polymer with a compound containing phosphorus acid groups, the reaction product being present in the composition in amounts of 50 to 90 percent by weight of the resinous binder and having reactive functional groups, and

ii. a curing agent having functional groups reactive with the functional groups of (i), the curing agent being present in the composition in amounts of 10 to 50 percent by weight of the resinous binder; and

b. an electroconductive pigment dispersed in (a) such that the weight ratio of b to (i) plus (ii) is within the range of 0.5 to 9.0:1,

the curable coating composition being characterized such that when it is deposited and cured on a metal substrate, the cured coating is weldable.

Support for the amendment can be found in claims 11 and 12 of the application as originally filed.

REMARKS

In the Office Action, claims 1-28 were pending. Claims 15-28 were withdrawn from consideration, and claims 1-14 were rejected. The claim rejections are discussed below.

I. Claim Rejection under 35 U.S.C. § 103(a) over US Patent No. 6,440, 580 ("Berger") and US Patent No. 4,346,143 ("Young") in view of Japanese Patent No. 7-331164

A. The Cited References

1. The Berger Reference

Berger discloses a weldable, coated metal substrate in which a pretreatment coating comprising a beta.-hydroxy phosphorous ester that is the reaction product of epoxy-functional material and a phosphorus-containing material is deposited upon a metal surface followed by depositing a weldable coating comprising an electroconductive pigment and a resinous binder on the pretreatment coating. Suitable resinous binders are disclosed at column 9, lines 20-58.

2. The Young Reference

Young discloses pretreating a ferrous metal substrate with nitric acid followed by the application of a zinc-rich coating. When cured, the coating is weldable. The resinous binder for the zinc-rich coating can contain an epoxy resin as disclosed at column 5, lines 18-62.

3. JP 7-331164

JP 7-331164 discloses a thermosetting resin composition for coating steel plates. The resin contains (a) an epoxy resin modified with phosphoric acid, (b) a polyester resin containing hydroxyl groups, and (c) a curing agent. The epoxy resin modified with phosphoric acid is present in the resin composition in amounts of 0.1 to 20% by weight based on theweight of (a) + (b) + (c). The compositions are used as an undercoat for precoated metal substrates.

B. Traversal of the Rejection

To establish a prima facie case of obviousness, the United States Patent and Trademark Office must satisfy three requirements. First, the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or to combine references. See In re Fine, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. See Amgen, Inc. v. Chugai Pharm. Co. 927 F.2d 1200, 1209, 18 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1991). Third, the prior art reference or combination of references must be teach or suggest all the limitations of the claims. See In re Wilson, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A 1970).

In this case, the Examiner has not satisfied any of the requirements for a prima facie case of obviousness. There is no teaching or suggestion in the references to formulate a coating composition as claimed. Berger is silent on relevant amounts of binder and curing agent. Young offers no teaching whatsoever on using the reaction products of epoxy-containing polymers and phosphorous acid. Although the Japanese

patent discloses such reaction products in coating compositions, the patent does not disclose the use of such reaction products in weldable compositions as disclosed by Berger and Young. Also, the amount of the epoxy polymer modified with phosphoric acid in the Japanese patent range from 0.1 to 20 percent by weight which is far below the Applicant's 50 to 90 percent by weight range.

Even if one were to substitute the epoxy modified with phosphorous acid of the Japanese patent into the compositions of Berger or Young, one would still not arrive at a composition as presently claimed.

Because there is no teaching or suggestion to combine the references of Berger, Young, and JP 7-331164, the rejection of claims 1-14 under 35 U.S.C. § 103(a) over Berger and Young in view of Japanese Patent No. 7-331164 is improper and should be withdrawn.

II. Rejection under 35 U.S.C. 103(a) over US Patent No. 6,008,462 ("Soltwedel")

In the Office Action, claims 1-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Soltwedel. The Examiner stated that it would have been obvious to formulate the weldable coating of Soltwedel with the epoxy resin-phosphoric acid adduct in order to enhance the adhesion of the metal substrate.

A. The Soltwedel Reference

Soltwedel discloses a weldable coating composition comprising as the resinous binder a hydroxyl functional polyester resin and a curing agent. Up to 0.5 percent of adhesion promoters such as epoxy phosphate esters can be present in the composition.

B. Traversal of the Rejection

In this case, the Examiner fails to satisfy the third requirement for a prima facie case of obviousness as mentioned above. The Soltwedel reference does not teach or suggest all the limitations of the claimed invention. The resinous binder of the present invention comprises 50 –90 percent by weight of a reaction product of an epoxy-containing polymer with a compound containing phosphorus acid groups. Soltwedel teaches teaches epoxy phosphate esters can be added as adhesion promoters in amounts up to about 0.5 weight percent of total solids.

Since Soltwedel does not teach or suggest all the limitations of the claimed invention, the rejection of claims 1-14 under 35 U.S.C. § 103(a) as being unpatentable over Soltwedel is improper and should be withdrawn.

Conclusion

In light of the amendments and remarks above, amended claim 1 and all the claims dependent thereon should be in condition for allowance. If the Examiner has any questions concerning this response, please give the undersigned attorney a call at 412-434-2938. Thank you for your assistance.

Respectfully Submitted,

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Pittsburgh, Pennsylvania
July 9, 2003

Mark d-Up Version of Claim

1. A curable coating composition comprising:

a. a resinous binder comprising:

iii. a reaction product of an epoxy-containing polymer with a compound containing phosphorus acid groups, the reaction product being present in the composition in amounts of 50 to 90 percent by weight of the resinous binder and having reactive functional groups, and

iv. a curing agent having functional groups reactive with the functional groups of (i), the curing agent being present in the composition in amounts of 10 to 50 percent by weight of the resinous binder; and

b. an electroconductive pigment dispersed in (a) such that the weight ratio of b to (i) plus (ii) is within the range of 0.5 to 9.0:1,

the curable coating composition being characterized such that when it is deposited and cured on a metal substrate, the cured coating is weldable.

Support for the amendment can be found in claims 11 and 12 of the application as originally filed.